

Fig. 1

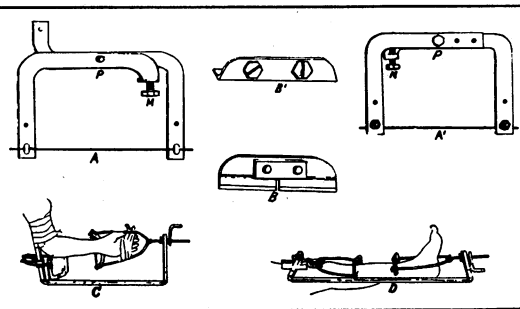


Fig. 2

Fig. 1.—Traction bar assembly; *S*, shield plate, reversible by use of bar channel *R*, for leg fractures; *T*, traction screw, lock nut *L*, when tightened, holds desired rotation; *B*, applied for closed reduction of forearm fracture—short adhesive holds hand closed; *C*, closed reduction leg fracture; *E*, ankle strap removable from under cast; *H*, knee strap.

Fig. 2.—*A*, self-tensing stirrups; *A'* hinge on bolt *P* and tense wire by tightening screw *M*; *BB'* retaining clamp, put on either end of wire; outside cast made snug to cast by bits of wet plaster bandage; stirrups off when cast hardens; *C*, transfixion wire traction on forearm; *D*, on the leg; bar not in the way of fluoroscopy; traction may be applied during operation. Entire assembly easily sterilized for operating.

Simple traction is applied to leg fractures, *C*, Plate 1, by use of the ankle strap, *E*, which is so made as to be removable after cast is applied well down over the malleoli. Counter traction is through the knee strap, *H*, Plate 1. This strong webbing strap goes twice around the leg below the patella, and laces through a leather pad anteriorly at each turn. The ends of the webbing are then made fast around the proximal arm of the bar where it emerges from the shield plate on the anterior surface of the thigh. The traction screw engages the hook on the ankle strap, *E*, and traction is applied. After reduction, plaster is put on from below the malleoli, and stops just short enough at the knee to permit the removal of strap, *H*, after plaster has set. The traction assembly is then removed and the cast extended over the foot, and above the knee if expedient.

If the bar is used as an emergency transportation splint on arm or leg, there must be ample padding beneath the shield plate and beneath all traction straps. Only very moderate traction should be applied.

This traction bar is particularly convenient for utilizing skeletal traction through tense transfixion wires, as illustrated in *C* and *D*, Plate 2. The self-tensing stirrups, *A*, *A'*, Plate 2, are simple devices for hooking up the wire and holding it tense. Each stirrup is made of two pieces of steel bar, one-fourth by five-eighths inches, hinged together by the tap screw, *P*, and spread, after the wire is clamped in the wirelock bolts, by tightening the tap screw, *M*. This screw is threaded through the end of one arm of the stirrup and screws up against the other arm so as to increase the distance between the tips of the stirrup.

Both stirrups are provided with holes in either arm about one inch above the wire. Through these holes are passed the ends of bridles made of three-sixteenths inch wire. The ends of these bridles (see *C* and *D*, Plate 2) have each a long threaded section provided with wing nuts. This makes possible a wide range of lateral adjustment of either end of either bridle, giving ample opportunity for correcting alignment of fractured bones.

When traction is applied to the bridles, the stirrups are perpendicular to the long axis of the

limb and the bridles approximately parallel to this axis. The bridle of the distal stirrup engages the hook of the traction screw. The bridle of the proximal stirrup attaches to the proximal side arm of the traction bar by means of a ferrule and clamp. When the distal wire is put through the os calcis, a much shorter bridle (not illustrated) is used on the distal stirrup, or the stirrup itself is hooked up directly to the traction screw. Prolonged traction may be maintained with this apparatus, but in most cases plaster is applied as soon as reduction is secured.

Wire-retaining clamps (*B*, Fig. 2) are fastened close to the plaster on either side to either wire, and their bearing surfaces made snug to the cast by using bits snipped from a plaster bandage. As soon as the cast has hardened so as to withstand the considerable strain of the tensed wires upon the retaining clamps, the stirrups may be loosened and removed, and the ends of the wires cut close to the clamps.

The writer uses unplated, oil-tempered spring steel wire of .0625 diameter. This wire is cut the desired length with a wire cutter, and a three-faceted trocar point made with a fine file. One may purchase as part of the equipment an adaptation of a simple mechanic's drill, which is admirable for transfixing with wire. No elaborate drill with wire guides is necessary. Due to simplicity of design and to the use of standardized materials, this entire assembly may be had at a fraction of the cost of the more pretentious machines.

490 Post Street.

## TUBERCULOSIS SERVICE OF ALAMEDA COUNTY\*

By CHESLEY BUSH, M.D.  
Livermore

THE tuberculosis service of Alameda County covers the diagnosis, treatment, and follow-up of indigent tuberculosis patients. It is not possible to speak of the county tuberculosis service without mentioning the tuberculosis service of the

\* From the Arroyo Sanatorium.  
A report to Alameda County Institutions Commission.

Alameda County Tuberculosis Association, which cares for the part-pay tuberculosis patients in conjunction with the Alameda County Medical Association and the tuberculosis service of the various health departments, including the Alameda County Health Department. All of this work, to be effective, must be coördinated and integrated. The county assumes the responsibility of this co-ordination, and it is done through the present medical superintendent of Arroyo Sanatorium, who has been placed in charge of county tuberculosis work, and the Social Service Department of Alameda County. One full-time social service coördinator is assigned to tuberculosis work, and in order to initiate and carry on this work the salary of this worker has been provided to date by the Alameda County Tuberculosis Association.

Deaths last year from tuberculosis were 308 in Alameda County. The number of clinic visits was 7,000 (or almost twice the standard), and the number of beds 334 (excluding Del Valle) or one bed per death. Despite the smaller number of beds per death, there has been no waiting list of any moment during the past year. The reason for this will be apparent as we proceed.

#### CLINICS

The clinics are three: at Thirty-first and Grove streets, at Hayward, and at Arroyo. The county's tuberculosis institutions are Fairmont (tuberculosis division), Arroyo, and Del Valle. We shall discuss them in the order named.

##### *Thirty-first and Grove Streets Clinic:*

This has become a consolidated clinic, as far as tuberculosis is concerned, including Berkeley and Alameda patients. The reason for this has been an available x-ray screen in the clinic quarters for the special use of lung examination. This screen not only has provided better examinations, but has saved the use of a tremendous number of celluloid films. The equipment was originally provided by the Alameda County Tuberculosis Association. The smaller number of patients in Alameda and Berkeley did not warrant the expenditure of money necessary to provide x-ray screen facilities there.

The clinic load approximated 650 visits per month, one hundred of these being pneumothorax treatments on patients who might otherwise be institutional cases. In 1932 the clinic load was about 250 visits per month, considering Oakland alone. This increase in load is due to four things:

1. A more intense campaign carried on by the Alameda County Tuberculosis Association and health departments for examination of contacts of known cases of tuberculosis as the best method of detecting early tuberculosis.
2. A more rapid turnover of institutions, and the treatment of more patients in their homes for a greater length of time.
3. A closer coördination between social service and relief agencies, by which Social Service is able to provide financially for the care of the patients in their homes not previously obtainable.
4. The inclusion of Alameda and Berkeley patients.

##### *Hayward Clinic:*

The Hayward clinic is operated every Friday morning. X-ray facilities are furnished by the Fairmont Hospital.

##### *Arroyo Clinic:*

The Arroyo clinic is operated every Monday afternoon in connection with the Pleasanton and Livermore health centers. Patients come to the sanatorium, and the sanatorium fluoroscopic screen is used. Recently a drive has been conducted by these two health centers in connection with the Alameda County Health Department, and the Arroyo clinic of late has examined every known indigent contact in relation to every known indigent case of tuberculosis in the district. The clinic load varies from two to twelve in an afternoon.

##### *Tuberculosis Ward of Fairmont Hospital:*

Tuberculosis patients at the Fairmont Hospital are cared for in the new south building, containing 140 beds.

Tuberculosis surgery is done at Fairmont, and the tuberculosis wards there have lost their old designation as a home for chronic tuberculosis, and now constitute a surgical hospital for tuberculosis, in addition to an admission ward for Arroyo. Patients are interchanged freely between Arroyo and Fairmont, and between the clinics and Fairmont, and thus the turnover for the south building is more than its entire population during the year. Last year averaged three patients per bed per year; that is, with 140 beds there were 315 discharges and 100 deaths. Not including deaths, the turnover averaged more than two patients per bed. There are from two to four lung operations every week. Many of these operations are for the rehabilitation of old tuberculosis cases, or at least an attempt to render them sputum-free if possible, so that they can be retained in the community without danger to their immediate neighbors.

The cost of patient care at Fairmont is \$1.15 per day. As a matter of fact, the expense of the tuberculous patient is slightly higher than that of the average Fairmont resident, but the cost is well below the average of similar institutions. The State of California returns to Alameda County approximately \$20,000 per year as a subsidy for tuberculosis patients in Fairmont.

##### *Arroyo Sanatorium:*

The population at Arroyo has been held constantly at approximately 180, with 145 of these adults. The turnover for last year was 241 patients, forty-seven of these being transfers to Fairmont for surgery or more surgery. This averages one and one-third patients per bed per year. More than half the patients at Arroyo are receiving pneumothorax compression with air, either on one lung or on both lungs simultaneously. This shortens the period of bed rest, and allows a certain percentage of these patients to be sent to their homes for continuation of treatment in the clinics. More patients are being given complete bed rest while institutional cases, and then sent home on becoming ambulant. No patient is suffering from lack of sufficiently prolonged care. No patient is discharged without proper Social

Service inspection of outside living conditions, and provision of extra care if necessary.

The beds in the children's department, retained for open cases of children's tuberculosis and bone and joint disease, have been completely filled only once during the year. This is the result, of course, of the decrease of tuberculosis infection throughout the country and also the decrease of the death rate. The death rate last year was 61 to 100,000. It is interesting to note that out of a county population of 400,000, not forty indigent cases of open children's tuberculosis needing institutional care could be found.

The cost of care at Arroyo is approximately \$1.75 to \$1.90 per day; and the State subsidy returned for Arroyo patients is \$26,000 per year.

#### *Del Valle Preventorium:*

This institution has beds for eighty-five children. Its population has been fluctuant throughout last year, varying from fifty-five to eighty-five. As originally planned, this institution was for tuberculous children, or children who were contacts to known tuberculosis and remarkably under par. The demand for care of this sort of child has become less and less for a number of reasons:

1. The marked decrease in tuberculous infection.
2. The marked increase of care of under-par children of this type in schools, as a result of Del Valle demonstration.
3. The better diagnosis and segregation of children with open tuberculosis from closed cases; and the better diagnosis of tuberculosis in children in general, resulting in many being no longer considered tuberculous.

4. The better feeding of the indigent population by governmental agencies.

It has been considered best to reduce the number of preventorium beds in Del Valle, and to use existing facilities for the care of children convalescing from other illnesses, as an aid to Alameda County Hospital and other agencies now trying to meet the problem. These children can thus be cared for at a cheaper maintenance rate, and with more ideal conditions. In order to undertake this new work, one dormitory building has been remodeled, with the assistance of SERA labor, to meet hospital conditions.

The cost of care at Del Valle has been \$1.10 to \$1.20 per day per child; and it is expected that convalescent children can be handled for slightly more.

Preventorium children receive a State subsidy similar to that for tuberculosis patients, and the income from this source has been \$7,200 per year, or one-third of the cost. This subsidy will not apply to convalescent care.

#### *Alameda Medical Association—Part-Pay Patients:*

When the Social Service Department of Alameda County certifies that a patient (not indigent) is able to pay in part for his medical examination, the case is turned over to the office of the Alameda County Tuberculosis Association. A social

worker is attached to that office, and it becomes the duty of that worker to contact the private physician handling the case in order to (1) arrange for an examination and see that it is done; (2) assist the physician in the use of the best modern methods of diagnosis; (3) see that contacts are examined.

Each case results in several visits to family and physician, but is compensated for by the education in tuberculosis work given to medical men not hitherto interested in tuberculosis, as well as listing and providing social work for an important part of the population. Over one quarter of the Alameda County physicians have been contacted in this way.

#### *Health Departments:*

These comprise Alameda, Oakland, Berkeley, Emeryville, Piedmont, Hayward, Pleasanton, Livermore, and Alameda County, with their allied or non-allied school departments. County tuberculosis service must contact all these in coordination of follow-up work and examination of contacts, because treatment is so allied to prevention in tuberculosis work that no distinct separation can be made. Better organization of preventive health work administratively in Alameda County would solve many problems.

#### SUMMARY

County administration of clinics, as well as institutions, has made possible a greater use of existing facilities, both clinics and institutions. The further increase of compression therapy and surgical treatment of tuberculosis has also increased the turnover of patients. Every county bed for tuberculosis, not including Del Valle where the turnover is naturally greater, was used approximately one and six-tenths times during the year, and twice, if deaths are included as a discharge. For a tuberculosis service this is a very rapid turnover, and illustrates the fact that institutions are no longer boarding homes for the tuberculous.

Clinic visits approximated more than the standard generally accepted, namely, fifteen per death. This is true because of much pneumothorax compression treatment carried on in the clinics as well as a steady routine of examinations of patients discharged from institutions and examinations of contacts to known cases of tuberculosis.

#### *Arroyo Sanatorium.*

---

*Advise Doctor's Examination for Breast Lumps.*—A lump in the breast cannot be cured by massaging or by neglecting it in the hope that it will go away, declares Dr. Norman J. Kilbourne. Massage, instead of curing, breaks the wall that nature has tried to build around the tumor to prevent its spread. Massaging squeezes the tumor cells into the circulatory system.

Because lumps in the breast are seldom painful, women who have them neglect to see a doctor. However, cancer of the breast usually starts without any pain at all; and then when the pain does come, it is often too late for cure. Patients with a lump just starting in the breast have ninety-three chances out of one hundred of being well five years later.